Amendments to the Claims

The following listing of claims will replace all prior versions, and listings, of claims in the subject application:

Listing of Claims

1. (Original) An isolated nucleic acid molecule encoding a $p75^{nrt}$-associated cell death executor.

2-4. (Canceled)

5. (Currently Amended) The isolated nucleic acid molecule of claim 1 ~~claims 1-4~~ encoding a neurotrophin associated cell death executor protein.

6. (Currently Amended) The isolated nucleic acid molecule of claim 1 ~~claims 1-4~~ which comprises a sequence of AATTG TCTAC GCATC CTTAT GGGGG AGCTG TCTAA C (SEQ ID NO:1).

7-8. (Canceled)

9. (Original) A vector which comprises the isolated nucleic acid of claim 1 operatively linked to a promoter of RNA transcription.

10. (Canceled)

11. (Currently Amended) The isolated nucleic acid molecule of claim 1 ~~claim 3~~, wherein the nucleic acid molecule encodes human or mouse polypeptide capable of binding $p75^{nrt}$ receptor.

12. (Canceled)

13. (Currently Amended) The isolated nucleic acid molecule of claim 1 ~~claim 3~~, wherein the nucleic acid molecule encodes a polypeptide capable of binding $p75^{nrt}$ receptor.

14. (Canceled)

15. (Currently Amended) The isolated nucleic acid of claim 1 ~~claim 3~~ which comprises the nucleic acid sequence set

forth in Figure 1G-1 (SEQ ID NO: 55).

16. (Original) A host cell comprising the vector comprising the nucleic acid molecule of claim 1.

17. (Canceled)

18. (Currently Amended) A method of producing a polypeptide capable of binding $p75^{nrt}$ receptor which comprises growing the host cells of claim 16 ~~claim 17~~ under suitable conditions permitting production of the polypeptide.

19. (Canceled)

20. (Original) An isolated nucleic acid molecule of at least 15 contiguous nucleotides capable of specifically hybridizing with a unique sequence included within the sequence of the nucleic acid molecule of claim 1.

21-22. (Canceled)

23. (Original) An isolated nucleic acid molecule capable of specifically hybridizing with a unique sequence included within the sequence of a nucleic acid molecule which is complementary to the nucleic acid molecule of claim 1.

24-25. (Canceled)

26. (Original) An antisense oligonucleotide having a nucleic acid sequence capable of specifically hybridizing to an mRNA molecule encoding a polypeptide capable of binding $p75^{nrt}$ receptor.

27-28. (Canceled)

29. (Original) A purified $p75^{nrt}$-associated cell death executor.

30. (Original) A purified polypeptide capable of binding $p75^{nrt}$ receptor encoded by the isolated nucleic acid of claim 1.

31-38. (Canceled)

39. (Currently Amended) A monoclonal antibody directed to an epitope of a polypeptide capable of binding $p75^{nrt}$ receptor

of claim 30 ~~claim 35~~.

40. (Canceled)

41. (Currently Amended) A polyclonal antibody directed to an epitope of the polypeptide capable of binding $p75^{nrt}$ receptor of claim 30 ~~claim 32~~.

42. (Canceled)

43. (Original) A method of inducing apoptosis in cells which comprises expressing a polypeptide capable of binding $p75^{nrt}$ receptor in the cells.

44. (Original) A method of inducing apoptosis in a subject which comprises expresing a polypeptide capable of binding $p75^{nrt}$ receptor in a subject.

45. (Canceled)

46. (Currently Amended) A transgenic nonhuman mammal which comprises an isolated DNA molecule of claim 1 ~~claim 2~~.

47. (Canceled)

48. (Original) A method of determining physiological effects of expressing varying levels of a polypeptide capable of binding $p75^{nrt}$ receptor in a transgenic nonhuman mammal which comprises producing a panel of transgenic non human mammal expressing a different amount of polypeptide capable of binding $p75^{nrt}$ receptor.

49. (Original) A method of producing $p75^{nrt}$ -associated cell death executor which comprises:

(a) inserting a nucleic acid molecule encoding the $p75^{nrt}$-associated cell death executor into a suitable vector;

(b) introducing the resulting vector into a suitable host cell;

(c) selecting the introduced host cell for the expression of the $p75^{nrt}$-associated cell death executor produced.

50. (Original) A method of inducing apoptosis of cells in a subject comprising administering to the subject a purified polypeptide capable of binding $p75^{nrt}$ receptor in an amount effective to induce apoptosis.

51-52. (Canceled)

53. (Currently Amended) A pharmaceutical composition comprising a purified polypeptide capable of binding $p75^{nrt}$ receptor of claim 30 ~~either claim 32 or 33~~ and a pharmaceutically acceptable carrier.

54. (Canceled)

55. (Original) A method of identifying a compound capable of inhibiting biding between $p75^{nrt}$ receptor and a polypeptide capable of binding $p75^{nrt}$ receptor comprising:

a) contacting the compound with the polypeptide capable of binding to $p75^{nrt}$ receptor under conditions permitting the biding of the polypeptide capable of binding to $p75^{nrt}$ receptor and $p75^{nrt}$ receptor to form a complex;

b) contacting the $p75^{nrt}$ receptor with the mixture from step a); and

c) measuring the amount of the formed complexes or the unbound $p75^{nrt}$ receptor or the unbound polypeptide or any combination thereof.

56-68. (Canceled)

69. (Original) A method for identifying an apoptosis inducing compound comprising:

a) contacting a subject with an appropriate amount of the compound; and

b) measuring the expression level of a polypeptide capable of binding $p75^{nrt}$ receptor gene and $p75^{nrt}$ gene in the subject, an incase of the expression levels of a polypeptide capable of binding $p75^{nrt}$ receptor

gene and $p75^{nrt}$ gene indicating that the compound is an apoptosis inducing compound.

70-72. (Canceled)

73. (Original) A method for screening cDNA libraries of a polypeptide capable of binding $p75^{nrt}$ receptor using a yeast two-hybrid system using a $p75^{nrt}$ intracellular domain as a target.

74-77. (Canceled)

78. (Original) A method of induce caspase-2 and caspase-3 activity to leave poly (ADP-ribose) polymerase and fragment of nuclear DNA in a cell by co-expression of polypeptide capable of binding $p75^{nrt}$.

79. (Original) A method of inhibiting NF-kB activation in a cell with polypeptide capable of binding $p75^{nrt}$ receptor and $p75^{nrt}$.

80. (Original) A method to detect a neurodegenerative disease in a subject by detecting expression levels of a polypeptide capable of binding $p75^{nrt}$ receptor and $p75^{nrt}$.

81-82. (Canceled)

83. (Original) A transgenic nonhuman mammal which comprises an isolated nucleic acid, encoding a human HGR74 protein, which is a DNA molecule.

84. (Canceled)

85. (Original) A method of determining physiological effects of expressing varying levels of human HGR74 in a transgenic nonhuman mammal which comprises producing a panel of transgenic non human mammal expressing a different amount of human HGR74 protein.

86. (Original) A method of producing human HGR74 protein into a suitable vector which comprises:

(a) inserting a nucleic acid molecule encoding a human HGR74 protein into a suitable vector;

(b) introducing the resulting vector into a suitable host cell;

(c) selecting the introduced host cell for the expressions of the human HGR74 protein;

(d) culturing the selected cell to produce the human HGR74 protein; and

(e) recovering the human HGR74 protein produced.

87. (Original) A method of inducing apoptosis of cells in a subject comprising administering to the subject the purified human HGR74 protein in an amount effective to induce apoptosis.

88-89. (Canceled)

90. (Original) A pharmaceutical composition comprising a purified human HGR74 protein and a pharmaceutically acceptable carrier.

91. (Original) A method for identifying an apoptosis inducing compound comprising:

(a) contacting a subject with an appropriate amount of the compound; and

(b) measuring the expression level of human HGR74 protein gene and $p75^{nrt}$ gene in the subject, an increase of the expression levels of human HGR74 protein and $p75^{nrt}$ gene indicating that the compound is an apoptosis inducing compound.

92-99. (Canceled)

100. (Original) A method of induce caspase-2 and caspase-3 activity to cleave poly (ADP-ribose) polymerase and fragment nuclear DNA in a cell by co-expression of human HGR74 protein and $p75^{nrt}$.

101. (Canceled)

102. (Original) A method to detect a neurodegenerative disease in a subject by detecting expression levels of

human HGR74 protein and $p75^{nrt}$.

103-104. (Canceled)

105. (Original) A method of identifying a compound, which is an apoptosis inhibitor, said compound is capable of inhibiting specific binding between polypeptide capable of binding $p75^{nrt}$ receptor and $p75^{nrt}$ receptor, so as to prevent apoptosis which comprises:

(a) contacting the polypeptide capable of binding $p75^{nrt}$ receptor with a plurality of compounds under conditions permitting biding between a known compound previously shown to be able to displace a polypeptide capable of binding $p75^{nrt}$ receptor and the $p75^{nrt}$ receptor and the bound $p75^{nrt}$ receptor to form a complex; and

(b) detecting the displaced polypeptide capable of binding $p75^{nrt}$ receptor or the complex formed in step (a), wherein the displacement indicates that the compound is capable of inhibiting specific binding between the polypeptide capable of binding $p75^{nrt}$ receptor and the $p75^{nrt}$ receptor.

106-130. (Canceled)

131. (Original) An isolated nucleic acid molecule encoding a deletion mutant of a wild type polypeptide capable of biding with a $p75^{nrt}$ receptor, designated neurotrophin associated cell death executor protein (NADE) N(41-124), and the NADE N(41-124) induces apoptosis in the presence of $P75_{ntr}$.

132. (Original) An isolated nucleic acid molecule encoding a deletion mutant of a wild type polypeptide capable of biding with a $p75^{nrt}$ receptor, designated neurotrophin associated cell death executor protein (NADE), wherein

the C-terminal 72-124 amino acids of wild type NADE polypeptide have been deleted and the deletion mutant is designated NADE N(1-71), and the NADE N(1-71) induces apoptosis in the presence of $p75^{nrt}$ and in the absence of $p75^{nrt}$.

133. (Original) An isolated nucleic acid molecule encoding a deletion mutant of a wild type polypeptide capable of binding with a $p75^{nrt}$ receptor, designated neurotrophin associated cell death executor protein (NADE), wherein the N-terminal 1-40 amino acids and the C-terminal 72-124 amino acids of wild type NADE polypeptide have been deleted and the deletion mutant is designated NADE N(41-71), and the NADE N(41-71) induces apoptosis in the presence of $p75^{nrt}$ and in the absence of $p75^{nrt}$.

134. (Original) An isolated nucleic acid molecule encoding a deletion mutant of a wild type polypeptide capable of binding with a $p75^{nrt}$ receptor, designated neurotrophin associated cell death executor protein NADE), wherein the C-terminal 121-124 amino acids of wild type NADE polypeptide have been deleted and the deletion mutant is designated NADE N(1-120) and the NADE N(1-120) induces apoptosis in the presence of $p75^{nrt}$.

135. (Original) An isolated nucleic acid molecule encoding a deletion mutant of a wild type polypeptide capable of binding with a $p75^{nrt}$ receptor, designated neurotrophin associated cell death executor protein (NADE), wherein the C-terminal 113-124 amino acids of wild type NADE polypeptide have been deleted and the deletion mutant is designated NADE N(1-112) and the NADE N(1-112) induces apoptosis in the presence of $p75^{nrt}$.

136. (Original) An isolated nucleic acid molecule encoding a deletion mutant of a wild type polypeptide capable of

binding with a $p75^{nrt}$ receptor, designated neurotrophin associated cell death executor protein (NADE), wherein the C-terminal 101-124 amino acids of wild type NADE polypeptide have been deleted and the deletion mutant is designated NADE N(1-100) and the NADE N(1-100) induces apoptosis in the presence of $p75^{nrt}$ and in the absence of $p75^{nrt}$.

137. (Original) An isolated nucleic acid molecule encoding a mutation of a wild type polypeptide capable of binding with a $p75^{nrt}$ receptor, designated neurotrophin associated cell death executor protein (NADE), wherein the point mutation results in Ala at amino acid position 99 for Leu at amino acid position of wild type NADE polypeptide, wherein the substitution mutant polypeptide is designated NADE N(L99A) and the NADE N(L99A) induces apoptosis in the presence of $p75^{nrt}$.